John Vanston

Introduction of Commissioner Bob Armstrong

Our previous speakers today have dealt with the legal aspects of the geothermal resource and the environmental aspects of utilizing those resources. Our final speaker this morning will speak on both of these subjects and combine them. The land commissioner of the State of Texas is charged with the management of some 22 million acres of state land.

Our present commissioner has seen fit to extend that responsibility to make sure that adequate importance is given to the environmental aspects of the problem as well.

In particular, as concerns geothermal, the recent Senate Bill 685, which we discussed earlier, charges the land commissioner with overseeing the exploration, development, production of geothermal energy and associated resources on the lands governed by his office, that is, the state lands.

At the beginning of this program, in our very first session, Myron Dorfman described another public servant as being intelligent, energetic and mindful of the welfare of the state and its populous.

Myron, as concerns our next speaker, I think you took the words right out of my mouth. It is with great pleasure that I introduce to you the Honorable Bob Landis Armstrong.

Bob Armstrong

The Role of Public Lands in Geothermal Energy

It isn't often that I get introduced with my middle name. One of the campaign slogans we just started is "His middle name begins with Land."

You know, when you finish a legislative session, as we have just done, I think everybody is mindful of the pressures that are put on the legislature itself, but not many people except those of us who are in the agencies realize how much pressure is put on the agencies just to keep up with the legislature.

I think Senator [A. R. "Babe"] Schwartz was one who said that the constitution requires that we meet for 140 days every 2 years. He thought that, maybe, the people would be better off if they met every 140 years for 2 days. I'm not sure that that might not have some equal applicability to congress and some other governing bodies.

I was reminded this morning, having been somewhat drained by a lot of travel and a lot of legislative activities, of the story about the mother who was attempting to get her son up to go to school. He responded by saying, "Well, Mamma, I just don't want to go and, as a matter of fact, I have just about decided that I'm never going to go again." His mother recognized this was a very critical time and that he needed some very critical reasoning. She said, "Well, you tell me why you wouldn't ever want to go to school again, and then I will tell you why you should. If my reasons are better, then you had better get up and get with it." He said, "Well, first of all, I just don't like school. Second of all, I really do like to sleep. Third, the kids mock me, they taunt me, they don't want

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to play what I want to play, and I just don't like it any more; I'm through. Now, you tell me why I ought to go." His mother said, "Well, first of all, you are 42 years old, and you're the only coach they have."

(Laughter)

In any event, this is kind of the way I felt toward the end of the legislative session on a couple of mornings. I don't mean to go over material that you have already had presented to you, but I do think that I would briefly describe my mandate from this legislature, a mandate which, incidentally, we had an adequate opportunity to discuss and make recommendations on, principally through discussions concerning geothermal as it was viewed earlier by the Governor's Advisory Committee on Energy.

I think the public policy declaration is pretty well summed up in one sentence, which is that the rapid and orderly development of geothermal-energy resources located within this state is in the interest of the people of the State of Texas. Therefore, we'll proceed accordingly. The key word, I assume, is rapid because they recognize that this is a potential source.

Dean McKetta said at one time that we ought to be very careful with the way we use geothermal energy in terms of its potential in the sense that it is exactly that. His analogy was that, in theory, simply everybody in this room has the potential to be the President of the United States. We don't know how many of you might make that particularly distinguished—or not distinguished as sometimes history shows—jump to leadership; similarly we don't know, frankly, how much geothermal energy is going to actually come on line.

We do think that the potential is there, and we do think that it's worth our effort to try to see what can be produced. As I understand the basic geology, so far as the State of Texas is concerned, we are looking at a trend down the Rockies in the area of West Texas, and we are also looking at a series of hot oil and gas wells off the Texas coast, south of Corpus and to some extent inland. This gives us reason to believe that this is an area, as I understand it, somewhat T shaped, some of it on land and some of it under submerged lands, which would probably bear an initial look with the expectation of finding something.

Once you start looking, we think that if you were to look at the public lands, you avoid some of the legal complications that might develop so far as private lands are concerned.

I think one of the things that concerned us as lessors of public land was, had we in fact by the negotiation of an oil and gas lease on fee school lands in the state of Texas, in effect, leased for geothermal or was this a new resource not contemplated by the terms of the oil and gas lease.

I think most people feel that the latter is true, that the contemplation at the time the existing leases were made was that this was not one of the things for which that lease was made and, therefore, any geothermal authority granted by the State of Texas will have to be done on a prospective basis.

I think that is basically the sense of Senate Bill 685; because they talk about on new leases that we enter into, or agreements concerning geothermal that we charge reasonable fees, that we check with other agencies, particularly as concerns the environmental aspect of the proposed development and this, to me, connotes that the legislature thinks of geothermal as separate and apart from our existing leases.

The only thing that we have to deal with from the point of legal aspects on the uplands is that we also manage and are responsible for what we call in this state, relinquishment act lands.

These are lands that, once we discovered that there was a possibility of oil and gas, the State divided the minerals from the surface and sold the surface to

an individual but retained the minerals. There are some 8 million acres of relinquishment act lands, but the surface owner is the agent for the state in terms of leasing. As a result of this, that agent gets half of the mineral production for being this agent.

Consequently, it's going to be an interesting question to say, "What can a relinquishment act land owner, as an agent for that state, do or what role does that particular person play in the leasing of geothermal. Also, what are the various equities in terms of who owns, then, the water products which, in many instances, may be more important to that land owner, particularly if it is good water, and, then, who, really, owns the energy source.

As you note, there have been various methods of looking at geothermal in terms of ownership. Iceland, I believe, considers the energy, the heat, as a resource that belongs to the public.

Some states have adopted this theory to a more limited degree than others. I've thought long and hard about what position we should take in terms of ownership. I think, basically, where you have fee land in the hands of an individual, you are probably talking about ownership of geothermal as part of that estate that went with the land.

As I said earlier, I think the significant thing is, if we are going to go ahead with either a pilot project or exploratory development, that the easiest way to do it in terms of legal aspects would be on public land: (1) because we think there is a good chance, as I said, particularly in the submerged lands off South Texas, that that's where we are going to find something, and (2) then you are not going to have any question about who owns it because I think it's clear that the state does.

We are also mandated, in the act, to cooperate in this rapid development of the thermal energy resource. Consequently, we are open for business so far as any proposal that somebody wants to make, either through the universities, through the private sector, or through governmental research such that we would welcome an opportunity for that first one to come through our office at whatever time somebody makes application to us.

I think, basically, the School Land Board will follow the same procedures that it has with oil and gas and that is to accept nominations of areas or tracts which would then be put up on a competitive-bid basis.

If somebody nominates one, I think that we could probably, under the authority of the act, negotiate it, but we would just have to look (and this is something we are charged with the responsibility of doing) to see whether or not we would have a negotiated sale of this right or whether we would put it up on a competitive basis.

The term *charge reasonable fees* is interesting to me because it does not connote, necessarily, competitive bids, but that is something that the School Land Board will determine.

The School Land Board, incidentally, is composed of the commissioner of the General Land Office who, by statute, is chairman. Then there is an appointee of the governor and an appointment of the attorney general.

This three-person board is charged with the development of the mineral resources of the State of Texas with the income derived there from going into the permanent school fund. That's pretty much the position we are in right now.

We think that in the West Texas area there are some 800,000 acres of land that are owned in fee by the state and some additional land—about 8 million acres—that has been mineral classified.

I'm not a geologist, but the ones that work for me and the ones that I have heard speak, and Myron's people, seem to think that there is a good chance

that there is some potential in that West Texas area and, perhaps, that also could be developed on state lands.

We have a very checkered ownership which causes us complexing problems. Because of this, the bill also includes authority for unit agreements in much the same way as your unitized reservoir for the purpose of production of oil and gas.

If we do have something in the West Texas area where we have checkered ownership, we could participate in a unit agreement for the development of geothermal.

I am not going to go into much more detail about what we're going to do because I simply don't know what we are going to do at this stage. I think the board is charged with the responsibility of considering all of the various possibilities and, consequently, we are open to suggestions.

We are interested in what other states are doing, we are interested in what we might do to be innovative to see that this rapid development occurs.

We are also very mindful of the environmental consequences that we are charged with the responsibility of protecting against, if those happen to be negative consequences.

We are required to coordinate all of our efforts with the Railroad Commission, which, once this gets on-stream, is going to be the regulatory body, as it is with oil and gas, but we are also to work with Parks and Wildlife, Water Development, and Water Quality in all of our decisions as to how the state lands are leased.

I'm going to give you about 10 minutes right now for questions because frequently I find that we do better in developing the subject matter with questions than we do with me just sitting here telling you what's on my mind. As my friend Art Bush says from time to time, here's your chance at a bureaucrat, so have at me.

Discussion

Howe
U.S. Geological Survey

This morning Dr. George Hardy, the Dean of the School of Law of the University of Kentucky, pointed out that we will be looking at geopressured zones with methane gas being produced at the same time as this water.

Have you considered that, in the consideration of oil and gas laws, as he pointed out, perhaps we would not be considering the Geothermal Steam Law of 1970 because of this methane gas production? Might that present complications?

Armstrong

There is no question but that this is one of the sophisticated problems. As I understand it, what happens is that hopefully, you are going to find heat.

Second, it's either going to be dry or it's going to be wet. Third, if it's wet, it may be water or it may be gaseous. The gas, such as methane, which I understand is the most prevalent, is going to be available.

We attempted to deal with this because we said in the act that geothermal meant, among other things, steam and other gases, hot water and hot brines resulting from water, gas, or other fluids that are artificially introduced into the formations. This [last item] for the case when they were talking about artificial introduction and then retrieval [of fluids]. This is something I don't know about in terms of the methods, it's like Frasching or something else like that, where you are going to get something back that you put in.

Basically, we also talked about by-products. I think the intent of the law, at least right now, is that the methane will probably be a geothermal by-product and that we would be paid royalty on methane that was produced.

Here again, it gets pretty hairy pretty quickly when you get into the private sector. Maybe you are just going to have to—or I thought one way you might handle it was, if the public interest was sufficient, that the public would own the heat source, but that that land owner would then own the water (which he clearly does under existing state law) and any water profits that were derived; and then that gets you into problems as to whether it's going to be good water or bad water. He may not want to own the bad water. Of course, this is one of the real areas that you are not going to know about until you get there and know what you're dealing with.

I thought at one time that perhaps the state might take the position that way back there, when we released all minerals to the surface owner, that this was not contemplated and the legislature might say that the heat source itself belonged to the public, that water then would belong to the land owner, and perhaps the methane.

At least right now, I think this is one reason why I would advocate drilling on public lands—because you immediately jump over all those problems if you happen to have your development on public lands. Then, clearly, it would all belong to us, and the royalty would be paid.

The interesting thing is, what royalty do you pay, and how do you do it? That's why it was interesting to me that they talked about a reasonable fee. They didn't talk about royalties. So are we going to talk about precentages of gross receipts? Are we talking about . . . all kinds of interesting possibilities . . . are we going to take our part of it? It gets pretty sophisticated pretty fast. I think basically we have a free rein to work these things out by negotiation, and I think we can do it, but I don't want to make any rules ahead of time without knowing a little more about it.

I think probably what you will see is a lease to a consortium, as I understand, people in both the public and private sector who will go ahead and attempt to drill. If this shows that it's there, we will work out the details of how we are going to split up the pie so far as the monetary aspects of it are concerned.

We will probably look pretty hard at what other states are doing. Is the production in California, at San Francisco, on private land?

Stefanides
Union Oil Company of California

Both. Some private and some of it is under litigation between the state and the surface owners.

Armstrong

How does it work? Is there a royalty basis?

Stefanides

Yes, there is a royalty paid. Actually, the operator has a lease from both parties, and royalties are set up so they will be paid to whomever receives final ownership.

Armstrong

And what is the royalty paid? On what basis, Btu's?

Stefanides

The kilowatt hours generated.

Armstrong

Kilowatt hours produced.

Groat
Bureau of Economic Geology, University of Texas

As you know, there will be lots of waters generated and this produces other aspects of the potential of geothermal. Is this going to be factored into your program in any way?

Armstrong

Well, the Coastal Zone Management Program in its scope is broad enough to consider this, and I think it would be a natural so far as that is concerned. Again, we haven't really gotten into it, other than the light work we have done with you, simply because if it's really there, then it has to be a part of the Coastal Zone Management.

A lot of people have said, particularly in this area, "What do we care about geothermal? That's off in Corpus." The point that I make to the people in Austin and San Antonio is that, as they know, they are in a gas crunch. Any source that would be available to Corpus means, theoretically, that gas is freed up. Any gas they won't need because of the geothermal, Austin and San Antonio can have. I think it's pretty clear that it does affect everbody.

If you do have a significant find and it is of sufficient potential, obviously this then is going to have things to do with the Coastal Management Program in terms of plant siting, in terms of the need for transportation on the intercoastal waterway, in terms of getting it ashore if it happens to be offshore, and in terms of what are we going to do with the water if there is a significant amount of it and if we're working with submerged lands.

My guess is that we might be better off to be at least thinking, initially, about the upland situation as opposed to offshore, because I just think that that might be simpler, even though it might cause some legal problems.

I do think, if you have good water, for example, produced, then it would be significant as far as the uplands are concerned, because that is the area that also needs water pretty badly. If it is there in quantity, obviously it is then going to have something to do with our Coastal Zone Management Program.

Swanson
Southwest Research Institute

Most of the things involving the government with regard to geothermal necessarily involves some changes in regulatory policy or some regulation.

To what extent are you prepared to innovate in these changes to encourage the development of this resource?

Armstrong Well, I think that the first promise I ever made politically was that I was not going to be bound by tradition and that I was going to be innovative.

One of the things I would have to point out is that some of my innovations were more environmentally restrictive than in times past, which is not in line with what I think you are driving at or asking, but I think that one of the things, parenthetically, that we were able to do by putting the environmental restrictions into our leasing process, was to ensure that we could produce off Texas at a time when everybody else was being stopped by environmentalist suits.

I don't apologize for being more restrictive, we just stayed ahead of the times there and you could lease offshore Texas all the way through the times that federal offshore, Louisiana offshore was being stopped.

I think that the clear charge in the bill requires the production on a rapid basis, but also comes back in with an environmental balancing, that it be done within an environmental context.

I think the first thing we're going to say is that we are not going to be afraid to try. By the same token, we are not going to just open it wide open and say, "Okay, let's get the geothermal and to heck with the bays."

I think this balance can be effective. The first thing I would like to do is see us be reasonable about the kind of restrictions that we make.

One of the problems that I have with the feds is that then tend to be overly restrictive in terms of volumes of rules and regulations. I think we would be inclined to say, "Let's develop it and not pollute, and then we will work on some of the other problems when we see what we're talking about."

Again, you have to get, as I understand it, the hole in the ground and something on line before you know what your consequences are. I think it would be wrong to either assume the horribles or to be a Pollyanna and think that nothing bad could happen, and somewhere in between there we are going to try to work with you.

That's the only thing I can say at this stage. It's hard to get a handle on something when people know as little about it as they know at this stage.

It's just like equating Santa Barbara with offshore Texas. I get called upon all the time to tell people on the East Coast about Texas drilling. You know, congressmen up there have made political promises, "We're not going to let anybody drill because we don't want any Santa Barbara." To equate Santa Barbara with its geological background and structure with offshore Texas, for example, just doesn't make any sense. We have a much more stable drilling platform, and we have proven that we can develop it safely and without pollution.

You may not be good enough, no matter who you are, to handle the Santa Barbara structures, so far as I understand it, with total safety. I think the same is true here.

We may have a blessing in that the same stable structure may allow us to do things with geothermal that other people can't do as easily. I hope that's going to be the case. Are there any other questions?

Dorfman Bob, if I may, I would just like to take a moment to publicly express my appreciation, not only for your coming here today, but for the work you have done over the course of the last couple years with out reasearch group.

Commissioner Armstrong, as you can see, is a very important man to this state. He has worked with our group and the other groups that have been associated with us in geothermal research. He is innovative and he will help us in every way he can and I appreciate that very much.

Armstrong Well, I appreciate that. Once you say I am an important man, I am now obligated to tell what my wife makes me tell, which is the dead mule story. I will close with that.

It seems that the land commissioner was called by a minister very early on Sunday morning and told that there was a dead mule in the right-of-way immediately adjacent to the church parking lot, and what did the land commissioner intend to do about it?

His response was, "Well, first I don't have any jurisdiction over highways. That's the Highway Department. Second, it's awfully early on a Sunday morning after a pretty tough Saturday night before and third, it occurs to me, aren't you people responsible for the dead?

The minister, at that point, said, "Yes, but we are also supposed to notify the next of kin."

Vanston I would like to add my appreciation to Myron's to Bob Armstrong for coming to speak to us today and also to the other speakers who have addressed areas which have not been given too much consideration and which we think may be critical to the geothermal resource development.